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08/897,441

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
08/897,441	07/21/97	FIBI	M 5552.0953-04

EXAMINER

HM21/0331

FINNEGAN HENDERSON FARABOW GARRETT
AND DUNNER
FRANKLIN SQUARE BLDG
1300 I ST NW SUITE 700
WASHINGTON DC 20005-3315

ART UNIT	PAPER NUMBER
SCHEINER, T	
1642	5

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This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☑ Responsive to communication(s) filed on 7/21/97

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☑ Claim(s) 5-12 and 14-23 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
☐ Claim(s) _____ is/are allowed.
☑ Claim(s) 5-12 and 14-23 is/are rejected.
☐ Claim(s) _____ is/are objected to.
☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☑ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
☐ The specification is objected to by the Examiner.
☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☑ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.
☑ received in Application No. (Series Code/Serial Number) 08/267,539.
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☑ Notice of Reference Cited, PTO-892
☑ Information Disclosure Statement(s), PTO-1449, ~~Paper No(s).~~ 2 sheets
☐ Interview Summary, PTO-413
☑ Notice of Draftperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

* U.S. GPO: 1996-404-498/40517

DETAILED ACTION

Claims 1-4 and 13 have been canceled, and claims 17-23 have been entered by the amendments filed July 21, 1997. Claims 5-12 and 14-23 are pending in the application.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The "use" of epitope-specific anti-EPO antibody is not a statutory category of invention.

Claim Rejections - 35 USC § 112, second paragraph

Claims 5, 8, 17 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is vague and indefinite because it is drawn to a method, but recites no positive method steps. Moreover, the recitation "and/or directed against an EPO epitope, an epitope being defined as being composed of one or more peptides, or one or more sections of peptides" is

indefinite first, because it does not follow from the first part of the sentence, and second because it cannot be determined whether the peptides referred to are limited to those recited above.

Claim 8 is vague and indefinite because it is unclear how it further limits claim 6, from which it depends.

Claims 17 and 23 should recite that the anti-erythropoietin antibody is directed against epitopes **on EPO** that bind to the EPO receptor.

Obviousness-Type Double Patenting

Claims 7 and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of U.S. Patent No. 5,712,370. Although the conflicting claims are not identical, they are not patentably distinct from each other. Claim 1 of the patent recites a monoclonal antibody directed against an EPO peptide, which neutralizes the activity of EPO, and consists of less than complete EPO, said peptide having an amino acid sequence consisting of amino acid positions 138 to 166 of EPO; Claim 2 recites a monoclonal antibody directed against an EPO peptide, which neutralizes the activity of EPO, and consists of less than complete EPO, said peptide having an amino acid sequence consisting of amino acid positions 152 to 166 of EPO. Instant claim merely recites these same monoclonal antibodies in the alternative, in a single claim. Claim 19 recites a monoclonal anti-EPO antibody directed against epitopes on EPO that bind the EPO receptor, and the antibodies recited in claims 1 and 2 of the patent have that property.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.32 (c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 5, 6, 8, 10-12, 17, 18, 20, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin *et al.* (US PN 4,703,008).

Claim 5 is directed to a method of using various EPO peptides, including one representing amino acids 142-166 (P2) and one representing amino acids 152-166 (P2/1), and "sections" of these to prepare anti-EPO antibodies (the range given for P2 appears to be a typographic error, elsewhere it is given as 138-166). Claim 6 recites an antibody "directed" against an EPO peptide, wherein the antibody neutralizes EPO activity, and where the peptide has the amino acid sequence of positions 138-166 or 152-166 of EPO. Claim 8 is of the same scope as claim 6. Claim 10 recites the use of the antibodies of claim 6 for purifying and detecting EPO; claim 11 recites a diagnostic aid containing the antibody of claim 6 for detection of EPO. Claim 12 recites a diagnostic aid containing one of the EPO peptides of claim 5 for the detection of anti-EPO antibodies. Claim 17 recites and anti-EPO antibody directed against epitopes on EPO that bind EPO receptor; claim 18 further limits the antibody of claim 17 to one that neutralizes the activity of EPO. Claim 20 recites a diagnostic aid containing an anti-EPO antibody of claim 17. Claim 23 recites a method for purifying EPO, EPO derivatives or EPO peptides using the antibodies of claim 17. Finally, claim 23 recites anti-EPO antibody of claim 5, which is directed against epitopes on EPO which bind to the EPO receptor. All of these claims encompass polyclonal anti-EPO antibodies.

Lin *et al.* disclose polyclonal antibodies raised against a peptide representing amino acids 144-166 of EPO (a "section" of instant EPO peptides P2 and P2/1); the antibodies were shown to

specifically bind EPO. See column 36, lines 31-34. With respect to claims 6, 8, 10 and 11, which require that the antibodies have neutralizing ability, Lin *et al.* are silent on the issue of the ability of the prior art antibodies to neutralize the biological activity of EPO. However, Lin *et al.*'s peptide falls completely within the instant P2, terminating at the same position, but with six fewer amino acids; it is none amino acids longer than the instant P2/1, again it terminates at the same position. Thus, the instant and prior art peptides share amino acids 152-166 of EPO. Review of the instant specification indicates that the claimed neutralizing antibodies are directed against peptides 138-166 (P2) and 152-166 (P2/1) in the sense that they were **raised** against P2 and P2/1. The specification does not disclose the epitope within P2 to which the antibodies bind. Because antibodies raised against both P2 and P2/1 have neutralizing ability, one of ordinary skill in the art would conclude that antibodies with neutralizing ability bind an epitope somewhere within amino acids 152-166 of EPO. In the absence of evidence to the contrary, one would also conclude that Lin *et al.*'s **polyclonal** antibodies (essentially a mixture of different antibodies specific for different portions of peptide 144-166), inherently possess the ability to neutralize the biological activity of EPO because they are "directed to" a peptide containing the same epitope (within amino acids 152-166 of EPO) bound by the instant antibodies. Moreover, Lin *et al.* disclose isolation and detection of EPO using their antibodies. Column 36, lines 1-35.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 14-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin *et al.* (US PN 4,703,008).

Claim 9 recites an anti-idiotype antibody against the antibody of claim 8. Claim 14 recites an antibody of claim 8 in a pharmaceutically acceptable excipient; claim 15 recites an antibody of claim 9 in a pharmaceutically acceptable excipient; claim 16 recites a diagnostic aid containing the antibodies of claim 9. Finally, claim 21 recites a pharmaceutical composition containing anti-EPO antibodies of claim 17.

Lin *et al.* disclose as set forth above, but differ from the instant invention in not disclosing anti-idiotypic antibodies, and in not specifically reciting antibody preparations in pharmaceutically acceptable form. However, anti-idiotypic antibodies are conventionally used to characterize the antibodies they are raised against and it would have been obvious for one of ordinary skill in the art to have used Lin *et al.*'s antibodies to make anti-idiotypic antibodies to further characterize the first antibodies. Moreover, it is conventional to store antibodies used in diagnostic applications in physiological buffers, thus it would have been obvious for one of ordinary skill in the art to store Lin *et al.*'s antibodies in a form that is pharmacologically acceptable.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toni R. Scheiner whose telephone number is (703) 308-3983. The examiner can normally be reached Monday-Friday from 8:30 to 5:00.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

3/29/98

Toni R. Scheiner

TONI R. SCHEINER
PRIMARY EXAMINER
GROUP 1600